

Mendeleev and Meteorology

Garry Toth and Don Hillger

While Dimitri Mendeleev is famous as the “father” of the periodic table, his other scientific interests, including meteorology, are much less well known.

In 1871, after his work on the periodic table, Mendeleev turned his attention to the behaviour of gases. He made careful laboratory measurements of the temperatures, pressures and volumes of various gases in the hope of finding anomalies that went against established gas laws and that, he hypothesized, would demonstrate the existence of a universal “ether”. He found nothing of the sort, so in 1875 decided to change tack and study gases in the “natural laboratory” of Earth’s atmosphere. He expected that such research could lead to information that would be useful in understanding the weather, and explained that “in order to establish a correct understanding of a large number of meteorological phenomena, in order to determine the refraction of light in the air, in order to conduct hypsometric measurements and for many other investigations, it is necessary to know the law of the change of temperatures in different layers of air” (D. F. Nezdiurov, *Ocherki razvitiia meteorologicheskikh nabliudenii v Rossii*, Leningrad, Gidrometeoizdat, 1969, p. 35).

Since he could not observe the atmosphere directly from the ground, Mendeleev envisaged making measurements with manned instrumented balloons. He was familiar with the scientific flights of other balloonists but was unable to obtain financing for his own balloons.

To help popularize the science of meteorology, he had his assistants translate the Norwegian Heinrik Mohn’s book *Om Vind og Veir: Meteorologiens Hovedresultater* (Of Wind and Weather: Elements of Meteorology). The Russian version, with a preface by Mendeleev, was published in 1876.



Many postal items have been issued for Mendeleev. For example, in 1969 the USSR issued a stamp and a stamped envelope with the same cachet design, to mark the 100th anniversary of the periodic table. That envelope and the stamp as well as the corresponding cancel are shown here.

Mendeleev proposed to collect weather information from observers in the *zemstva* (local self-governing bodies in rural areas) as an aid to agriculture, but the idea was rejected by the meteorological establishment since such an organization would operate in parallel with the Russian Main Geophysical Observatory. As a meteorological outsider, Mendeleev was ignored. By the late 1870s he had turned his attention to other areas. His meteorological work was unfinished and is now not much more than a footnote in the history of the science.

The authors are both meteorologists who specialize in the philatelic topics of

1. Weather and Climate (see <http://rammb.cira.colostate.edu/dev/hillger/weather.htm>)
2. Un-manned Satellites (see <http://rammb.cira.colostate.edu/dev/hillger/satellites.htm>).

G. Toth can be contacted at gmt.varia@gmail.com, and D. Hillger at don.hillger@colostate.edu .